

Activity 5

The Changing Geography of Your Community

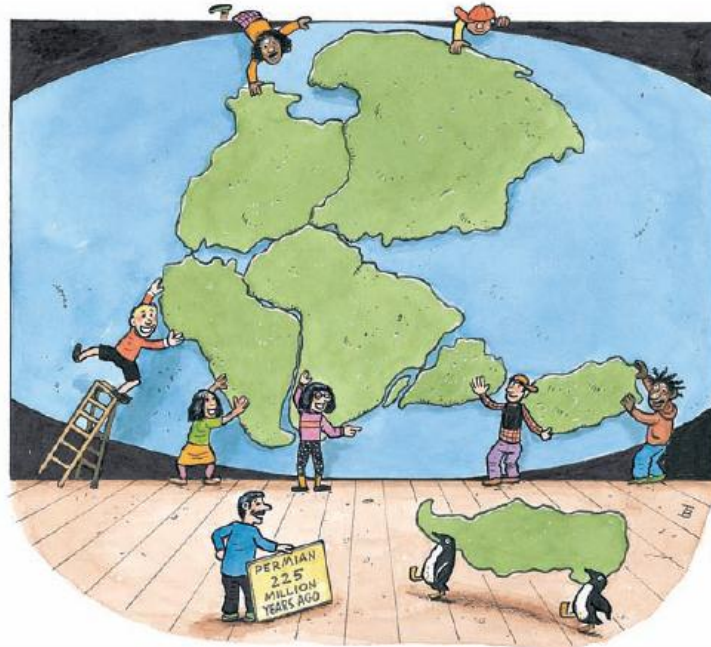
Think About It

Date

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- How would you be able to decide if the pieces of a puzzle all came from the same puzzle?



WHAT DO YOU THINK?

Activity 5

The Changing Geography of Your Community

Investigate

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Pages G106-109

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1a. Why cut the pieces
at the boundaries
between the continental
and oceanic crust?

1b. In which ecological
region is your community
today: tropics, subtropics,
mid latitudes, subpolar
or polar?

1c. Are the coal deposits
shown on the map in the
tropics today?

1d. Where do you find
mountains similar in
structure to the
Appalachian Mountains?

1e. Where do you find
rock formations similar
to those in South America?

1f. Where are fossils of
Glossopteris located

today?

1g. Where are fossils of Mesosaurus found today?

2a. Label the outlines
“Present”

2b. Draw a border
around the map.

2c. Sketch in and
label the Equator and
latitude lines at 30°
and 60° north and
south.

2d. Title the map
“Present”



Permian
225 million years ago

3a. Draw a border
around the map.

3b. Sketch in and
label the Equator and
latitude lines at 30°
and 60° north and

south.

3c. Title the map

“250 million years ago”

4a. Which two continents
fit together best?

4b. Why do you think the
continents do not fit
together exactly?

4c. From the map of
Pangaea, what can you
say about the latitude
and longitude of your
community 250 million
years ago?

4d. In what ecological
region was your
community 250 million
years ago?

4e. Where were the coal
deposits 250 million
years ago? Does this
make sense? Explain.

4f. Do the Appalachian
Mountains line up with
other formations that

they resemble?

4g. Do rock formations in South America line up with other formations that they resemble?

4h. How does *Glossopteris* appear to have migrated to its present fossil distribution, since its seeds could not be carried by the wind or float on water?

4i. How does *Mesosaurus* appear to have migrated to its present fossil locations, since it could not swim in the salty ocean?

5a. What will fill the spaces between the continents in the future?

5b. What will happen to the Mediterranean Sea? What will be created in southern Europe?

5c. Where will the southern coast of California be in 250 million years?

5d. In what latitude and in which ecological region might your community lie in 250 million years?

5e. How might the change in ecological region affect your community?

5f. Why might your prediction regarding the future location of your community and continent be in error?

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Digging Deeper

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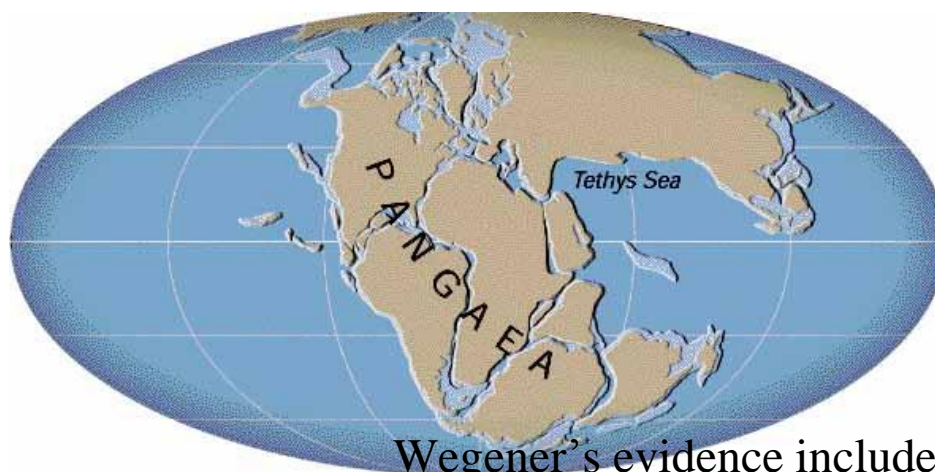
Alfred Wegener

1912 German geoscientist who suggested that all the continents were joined together some time in the past

http://www.classzone.com/books/earth_science/terc/content/visualizations/es0806/es0806page01.cfm?chapter_no=visualization

Pangaea

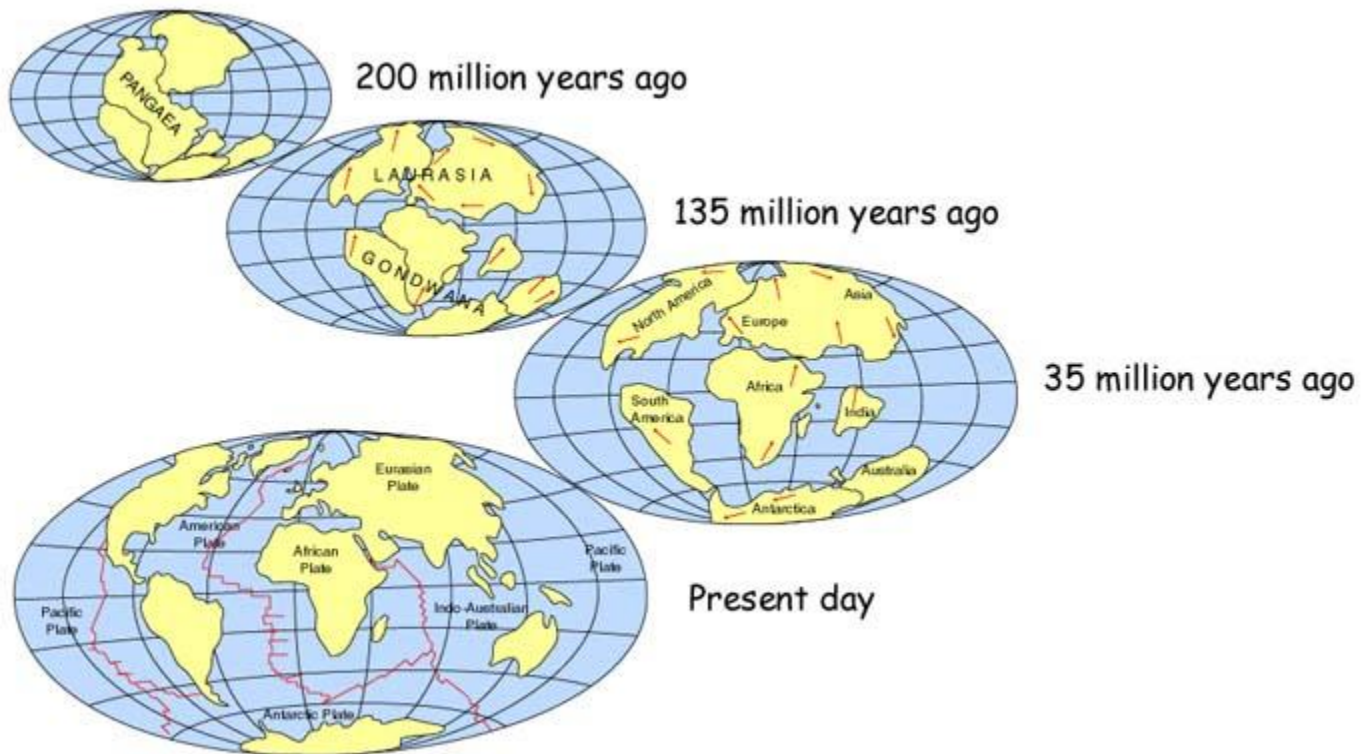
the name Wegener gave to the large landmass that broke apart 200 million years ago



Wegener's evidence included:

Continental drift

Wegener's theory that the continents have moved slowly to their current locations



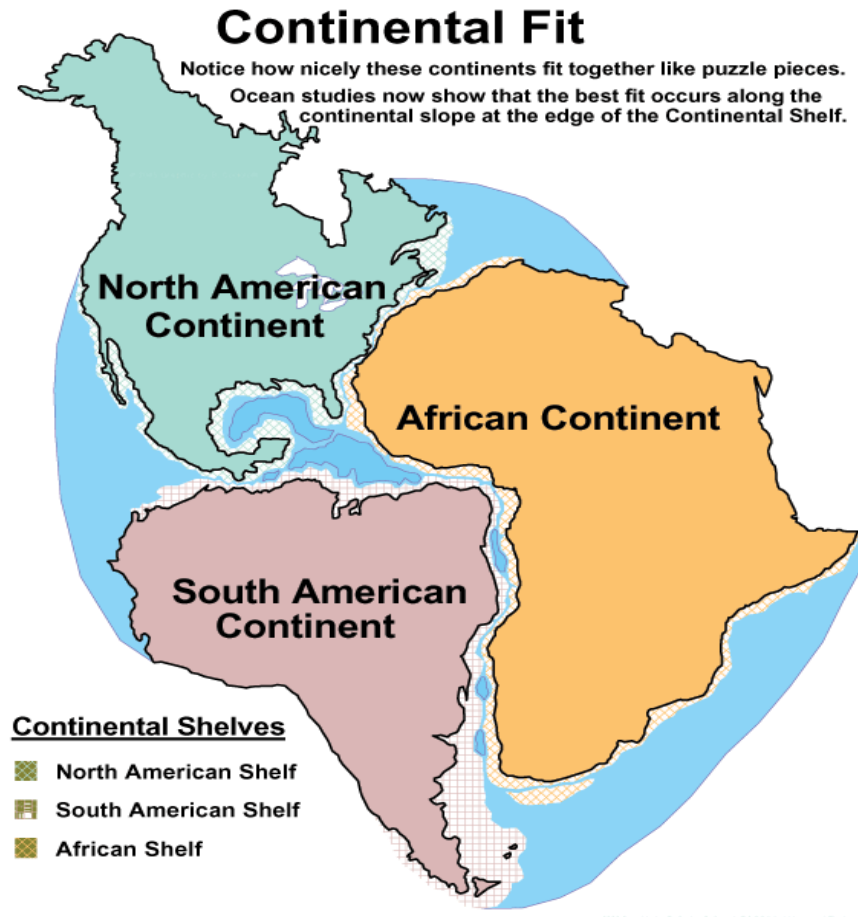
http://almandine.geol.wvu.edu/~dave/courses/101resources/platetect/18_Pangaea.swf

Wegener's evidence

- puzzle-fit of continents
- fossils
- climate clues
- rock clues

Puzzle fit

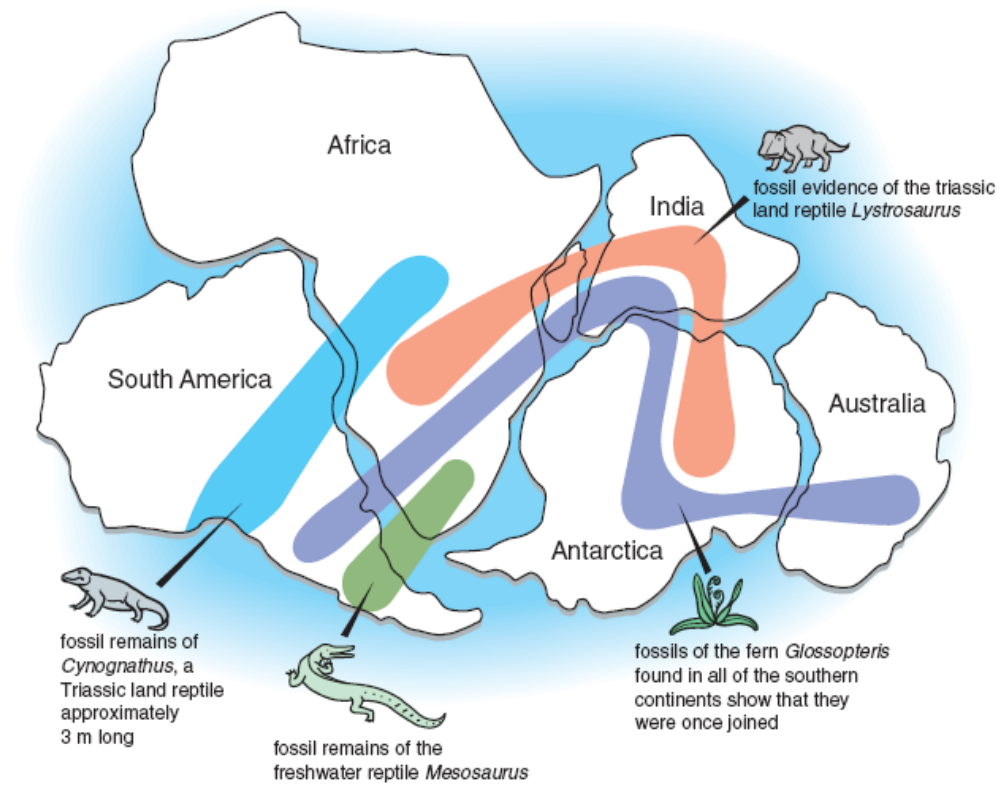
the continents fit together like pieces of a puzzle, especially South America and Africa



Fossil evidence

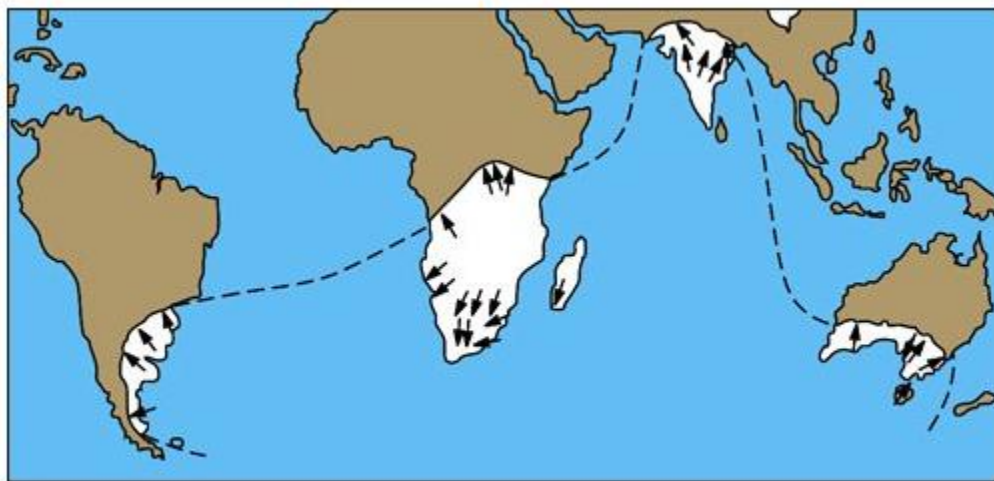
fossils of the freshwater reptile *Mesosaurus* were found in South America and Africa

Fossils of the fern *Glossopteris* were found in Australia, Antarctica, India, South America and Africa

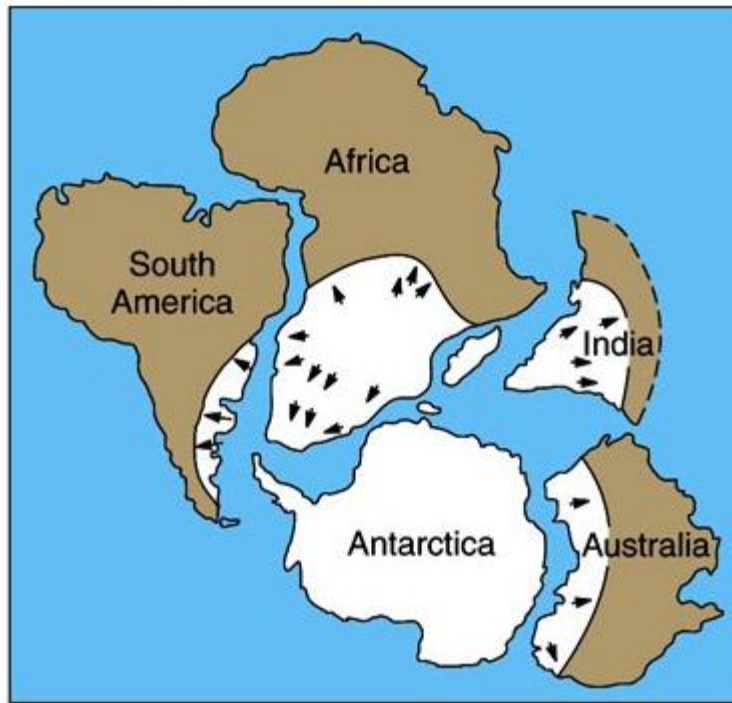


Climate clues

glacial evidence (rock grooves)
has been found in South America,
Africa, Australia and India



A

**B**

Fossils of warm-weather plants
were found on the island of
Spitsbergen in the Arctic Ocean



Rock evidence

similar rock structures are found on different continents:

1. Parts of the Appalachian Mountains of the eastern United States are similar to those found in Greenland and western Europe
2. Rock structures found in eastern South America and western Africa are also similar



Supercontinent

a large landmass made of all Earth's continents



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Check Your Understanding

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1. How did Suess explain the formation of mountain ranges?

2. What evidence was found to contradict Suess's proposal that the Earth is cooling and shrinking?

3. What evidence did Wegener use to support his theory of the breakup of Pangea?

4. How did Wegener propose that the continents move horizontally?

5. How was fossil evidence used to reconstruct Pangea?

